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ECONOMIC CHANGE IN RURAL TAMIL NADU
1950 - 1975

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This paper is the summary of a larger work Dynamics of Rural Transformation - A study of Tamil Nadu : 1950 - 1975 to be published soon by Orient Longman, Madras. The original study was completed in 1978 and no attempt has been made to bring the data upto date. This simpler version, devoid of all the technical methods used in the original version is brought out for the sake of general readers who may be interested in knowing what has been happening in our State, particularly in the rural areas, in the past.

If we are interested in making suggestions and putting forward concrete proposals to change rural society, we must first have some understanding of the laws of motion of rural society. Such an understanding, however, is impossible until we have obtained a picture of the nature of transformation that has taken place in the past and is continuing into the present.

It is, of course, not possible for any one individual to undertake a study of each and every aspect of rural society and rural life. In this study, an attempt has been made to start the process by putting together as much of the empirical evidence as is available on the changes that have come about in the rural economy of Tamil Nadu during the quarter century from 1950 to 1975, and to interpret them so that at least some part of their inter-relations can be seen and some part of the process of change can be understood.

The study has a deliberately chosen focus. An attempt has been made to interpret the changes from the

point of view of identifying the beneficiaries of the change. To do this, the population of rural Tamil Nadu has been divided into three broad groups -- large farmers, small farmers, and agricultural labourers. No attempt has been made to study non-agricultural activities in rural Tamil Nadu, because there does not exist sufficient material pertaining to these activities. Another major limitation that has been imposed on this study due to lack of data is that there is no analysis of the process of accumulation, i.e., on saving and investment patterns in rural Tamil Nadu. Despite these severe limitations, it is hoped that this study will serve as a 'first information report' to build up a 'case' so that further evidence can be assembled and a more thorough-going enquiry organised.

A background

Before going to the specific aspects of rural change, it is necessary to have some idea of the overall trends in the State during the period of the present study. To do this, we take up the trends in aggregate state income, population, and per capita income, along with related aspects, and examine what these indicators have to tell us about the overall trends in the State.[1]

To study aggregate State income, we examine the changes that have taken place in the value of Net State Domestic Product over time. A simple measure of changes in the NSDP can be made by taking the values for an initial year and for a terminal year, adjust the values for changes in the prices of the commodities manufactured, and compare the two resulting figures. Such comparisons will be acceptable only if the two years chosen are not in any way 'abnormal'. The year 1974-'75 was an abnormal year in the sense that due to severe drought conditions, production fell significantly and prices rose sharply in that year. Comparing, therefore, the two years 1950-'51 and 1973-'74, it is found that the

NSDP nearly doubled -- from Rs.744.92 crores to Rs.1626.45 crores, both values at 1960-'61 prices. Over the same period, per capita income rose by 45.53 per cent. The average annual rate of growth of the NSDP over this period stood at 3.2 per cent, and that for per capita income stood at 1.6 per cent. By contrast, the National Income, over the same period, and also at 1960-'61 prices, rose by 3.45 per cent per annum and the average per capita income for the country as a whole rose at 1.35 per cent per annum; whereas in aggregate terms the Tamil Nadu economy did not perform as well as the country as a whole, in per capita terms, the State did better than the country. Thus, in 1950-'51, the per capita income in Tamil Nadu was only Rs.4.00 above the all-India average, and by 1973-'74, the gap had widened, to Rs.34.00.

The composition of output also changed significantly over the period. The share of agriculture and allied activities declined noticeably from 57 per cent of NSDP in 1950-'51 to 42.8 per cent in 1973-'74. On the other hand, the tertiary sector (i.e. transport and communications, trade, finance and real estate, and other services) rose from 26.6 per cent to 34.8 per cent. The share of the secondary sector, mainly manufacturing, rose from 16.4 per cent to 22.4 per cent over the same period. The period was thus one of major sectoral transformation when measured in terms of share of output. However, this transformation does not appear to find itself reflected in the same manner in terms of the occupational structure of the working population in the State.

The population of Tamil Nadu, which stood at 30 million in 1951, moved up to 33.6 million in 1961 and to 41.2 million in 1971. Each of the Censuses of 1951, 1961, and 1971, have made estimates of the number of workers (or earners, in 1951) and non-workers (or dependants), as also of the number of workers in different occupational

categories. However, due very largely to changes in the definitions used in each Census, comparison of these figures is not likely to give accurate results regarding the pattern of change. Keeping this factor in mind, and regrouping the total work force in each Census year into primary, secondary and tertiary activities, it appears that while in 1951 about 62 per cent belonged to the primary sector, in 1971 the figure had gone up to 63.3 per cent. It is quite possible that the figure for 1971 is an under-estimate because of the definitional changes. What is of special significance is that this change appears to have come about at a time (as seen earlier) when the share of <u>output</u> of the primary sector decreased, and that of the secondary sector increased. It is approximately true that primary economic activities are co-existent with rural areas and the secondary activities with urban areas. The conclusion then is that the stimulus to secondary activities that came about during the period as reflected in the increase in its share of NSDP was not accompanied by any significant absorption of the labour force and hence the labour force had to be absorbed by the primary sector predominantly in the rural areas. In other words, during the period under study, there has been a shift of the labour force into the primary sector in general, and agriculture in particular.

Within the agricultural sector itself, a comparison of the Census figures for the different years shows an interesting result. Between 1961 and 1971, the number of cultivators in the State fell very sharply, while the number of agricultural labourers increased substantially. Although the decline in the number of cultivators is probably due to the change in the definition of the term, affecting to a large extent, the number of female cultivators, the rise in the size of the agricultural labourers came about essentially in the case of males, and the figure is far in excess of the reduction in the number of male

cultivators. The fact remains that the decrease in the number of cultivators and the increase in the proportion of agricultural labourers is one of the most striking aspects of change in the economy of rural Tamil Nadu in the recent past.

One other aspect of change must be noted: the proportion of population classified as rural declined noticeably over the period 1951 to 1971. While 76 per cent of the population in the State in 1951 was classified as rural, the share fell in 1961 to 73 per cent, and in 1971 to 70 per cent. In fact, in terms of the population classified as urban, Tamil Nadu ranked second only to Maharashtra in 1971. Closer examination has revealed that this process of 'urbanisation' in Tamil Nadu is more due to increased concentration of population in a few centres -- Madras, Coimbatore and Salem, for example -- with a large number of very small towns around them.

The details of change

Land and asset distribution

A crucial factor in understanding the rural economy of Tamil Nadu -- or of any other State in India, for that matter -- is the highly unequal distribution of land. A certain amount of information on the distribution of ownership as well as of operational holdings is available in various rounds of the National Sample Survey.[2] Taking only the data pertaining to the period after the States reorganisation in 1956, certain conclusions can be drawn about the land distribution in the State.

In 1959-'60, the bottom 60 per cent of all households in rural Tamil Nadu owned only 3.39 per cent of the land, while the top 1 per cent of households owned 18.22 per cent. In 1971-'72, the bottom 60 per cent accounted for 4.4 per cent and the top 1 per cent for 15.5 per cent. This would

appear to indicate a shift, however modest it may be, of land owned from the biggest owners to the smallest. A more detailed examination of the data, however, shows some additional results: first, there has been a noticeable decline in the share of total land owned by the group of those owning 50 acres and more. There has been a very marginal improvement in the position of those owning less than five acres in terms of the share of land owned. Third, while all other groups of landowning households have bettered their position, the major beneficiaries of changes in the ownership of land have been those owning more than 15 acres but less than 50 acres. However, taken as a whole, there have been no drastic changes in the pattern of ownership of land over the period under consideration. When the data for distribution of operational holdings is considered, the broad pattern appears to be the same as in the case of ownership holdings. Virtually all the size groups show the same degree of stability as in the case of ownership holdings; the only exception is that the average size of holding in the case of those operating 50 acres and more has declined sharply.

An examination of the pattern of asset distribution appears to indicate a slight increase in the concentration of assets in rural Tamil Nadu. 29.5 per cent of all households held assets worth less than Rs.500, and accounted for 1.2 per cent of all rural assets in 1961-'62.[3] By 1971, the same group accounted for 29.5 per cent of the rural households, and controlled only 0.86 per cent of all rural assets. On the other hand, in 1961-'62, 5.3 per cent of all households belonged to the group owning assets worth Rs.20,000 and more, and these households controlled 43.3 per cent of all rural assets. By 1971-'72, 8.15 per cent of households fell within the group, and accounted for 60.47 per cent of the assets.

The same fact can be expressed in another way: in 1961-'62, the bottom ten per cent of households in rural Tamil Nadu had average assets worth Rs.42, and the group accounted for 0.08 per cent of total assets; by 1971-'72, the average assets of the group had fallen to Rs.27, and the share stood at 0.04 per cent. On the other hand, the topmost 10 per cent of households had assets worth Rs.37,906 and accounted for 72.57 per cent of total assets; by 1971-'72, the average assets per household in the group had risen to Rs.59,001, and their share in the total rural assets had gone up to 77.64 per cent.

Moreover, detailed analysis shows that the assets of the bottom 60 per cent declined over the decade, with the share of the lowest group declining the most. On the other hand, the share of the top 40 per cent increased significantly, the largest increase taking place in the topmost group. Even within this group, it appears to have been the households at the very top -- the topmost 1 per cent -- whose assets have increased very dramatically.

The evidence thus appears to indicate that there is a very heavy concentration of assets in the hands of the wealthiest groups in the rural areas and that their relative share has increased over the decade, while that of the others has deteriorated.

Cropping pattern and productivity[4]

There are eight major crops in Tamil Nadu which account for between 80 and 85 per cent of the gross cropped area. These are: paddy, cholam, cumbu, ragi, pulses, sugarcane, and cotton. Over the period from 1951-'52 to 1973-'74, there appears to be no major change in the cropping pattern in the state. Within the group of cereals, however, there has been a perceptible change; paddy, which has been and is the major crop in the State, has improved its position, most of it during the years corresponding to the period of

the First Five Year Plan. This gain has been offset by a decline in the relative share of the other cereals. Among the cash crops, there has been a steady and sustained increase in the relative share of area under sugarcane, although the absolute area under the crop has always been rather small. The performance of the other major crops -- groundnut and cotton -- has been somewhat erratic if we consider each of the years that corresponded with the beginning of each five year plan.

In other words, it appears that during the period under review the two wet crops, paddy and sugarcane, have improved their position while the dry crops, especially the non-paddy cereals, have lost ground. Moreover, it appears that while the increase in the relative area under paddy occurred in the decade of the fifties, that of sugarcane increased in the following decade.

The data that are available also support some conclusions of a more general nature. During the fifties there was an increase in the area under cultivation under all crops with the sole exception of cumbu. Hence the fifties may be treated as a period of extensive cultivation. In the sixties, the trend changed; there was no major increase in the area under cultivation of any of the major crops except sugarcane and the area under millets and cotton registered a decline. In the first part of the seventies the area under millets and sugarcane went down, while paddy, groundnut and cotton showed increases. Subsequently cumbu and ragi showed some improvement while groundnut and cotton declined perceptibly. None of these changes, however, can be regarded as being so large as to indicate any major shift in the cropping pattern in the State.

The largest increase in productivity per hectare of land has been registered by paddy followed by ragi, as

is shown the table below:

Table 1

Percentage increase in productivity for major crops in Tamil Nadu over the period 1951-'52 to 1975-'76

Crop	Percentage increase in productivity
Paddy	83.4%
Cotton	79.1%
Ragi	66.0%
Cumbu	51.1%
Sugarcane	47.6%
Cholam	34.0%
Groundnut	17.2%

Source: Season and Crop Reports and Tamil Nadu: An Economic Appraisal (various issues)

Although cotton shows a tremendous increase in productivity between the two end years, its performance during the period indicates that productivity remained close to the 1951-'52 level at least until 1968-'69, showing a sudden jump thereafter, particularly in the period from 1973-'74 to 1975-'76. In the absence of other information, the rise in productivity cannot be regarded as being of a sustained sort as in the case of, say, paddy or ragi. It is interesting to note from the above table that the poorest performance came from a 'commercial crop', groundnut.

The time profile of the productivity data reveals some interesting results. In the fifties all crops showed an increase in productivity, although none of them is particularly impressive, with the possible exception of sugarcane. In the sixties, on the other hand, there was a decline in the productivity of cholam, ragi, groundnut and cotton, while paddy, cumbu and sugarcane showed some small increase. In the seventies there was an all round improvement in productivity, and all of them were big increases too.

Summarising these results on agricultural change, it appears that in the fifties there was an increase in the area under cultivation accompanied by some improvement in productivity. The decade of the sixties, on the contrary, was marked by stagnation in agriculture in area, productivity and production. This pattern was again reversed in the seventies, and there appears to have started an upward trend, especially in productivity and consequently in output. During the entire period, there was also a noticeable shift of land from dry to wet crops.

The foregoing analysis can be developed with some additional points of information. First, of the total geographical area of 130 lakh hectares, 40.5 per cent was under cultivation in 1951-'52. Net sown area increased significantly to 46.0 per cent by 1960-'61, and again to 48.3 per cent in 1970-'71. Coupled with a significant but fluctuating increase in area sown more than once, this has meant a striking increase in the gross cropped area in the State over the period as a whole.

Second, the extensive cultivation of the fifties was facilitated by the increase in irrigation. Total area irrigated, which stood at 20 lakh Ha. in 1951-'52, rose to 24.6 lakh Ha. in 1960-'61. It stagnated at more or less this level until 1970-'71. In the subsequent three years

it increased rapidly, reaching 29.1 lakh Ha. by 1973-'74.

As noted already, the extensive cultivation of the fifties was shared by all main crops except cumbu although the major changes were in the case of the two wet crops, paddy and sugarcane, as also of cotton. The more important fact is that during this period the output per hectare of all crops registered an increase. Extensive cultivation of the fifties, therefore, was not the usual case of less fertile land being brought under the plough, a phenomenon that results in an increase in output but decrease in productivity; it was essentially a case of more dry land being converted into wet land through irrigation, although there was some increase in the net sown area as well. It shows the fundamental importance of water in the agriculture of the State.

Agricultural implements

There has been an interesting difference in the use of older types of implements and modern ones. There has been a very negligible increase in the number of ploughs in the State -- about 24 per cent over a period of twenty four years from 1951 to 1974. The number of carts declined, albeit marginally, from 0.68 million to 0.59 million over the same period. By contrast, the number of tractors has shot up from 327 in 1951 to slightly over 7,100 in 1974; the number of oil engines has gone up over the period from about 14,000 to over 234,000. But by far the most dramatic increase has been in electric pumps, where the number has risen from 14,751 to 680,705. The stagnation and decline in the use of conventional implements and the sharp increases in the use of the modern ones has been one of the most impressive changes in the agricultural sector in rural Tamil Nadu.

The changes in the irrigation patterns and the changes in the use of agricultural implements appear clearly to be

linked; it can be seen that the spurt in the increase in irrigation in the early fifties occurred along with a jump in the use of tractors. There was a slowing down of tractorisation in the second half of the fifties which was reversed only after a new form of irrigation through electric pumps became available. For the period that followed there appears a close connection between the increase in irrigation through pump sets and the increased use of tractors. A possible explanation for the decrease in the number of carts since the second half of the sixties is that the increase in the number of tractors may have led to tractors and trailers becoming substitutes for carts. This inference is supported by the fact that between 1966 and 1974 there has been a big change in the ownership pattern of tractors: in the former year, 78.49 per cent of all tractors in the State were private owned; by the latter year this figure had risen to 86.58 per cent.

The increasing mechanisation of agriculture has also been accompanied by an equally impressive increase in the use of fertilisers. Fertiliser consumption was very low in the early fifties, and rose only slowly until the early sixties; with the introduction of the high yielding varieties in the latter part of the decade, there was a visible increase in the use of fertilisers which picked up again substantially by 1973-'74. The average consumption of fertilisers, which in 1950-'51 stood at around 2 kg per Ha., thus had risen, by 1973-'74 to 44 kg per Ha.

The high yielding varieties programme

A reference to the high yielding varieties programme is necessary to complete the account of agricultural transformation in the State. The performance of the fifties gave a fairly rosy picture of agricultural change. Area cultivated had gone up, and there was also an all round increase in production and productivity. On the basis of

this performance, which was marked by a rise in foodgrain production from 32 lakh tonnes in 1950-'51 to 54 lakh tonnes in 1960-'61, a 70 lakh tonne target was set for the Third Five Year Plan. But after moving up to 58 lakh tonnes in 1962-'63, foodgrain production stopped increasing. In fact it fell to 50 lakh tonnes in the drought year of 1965-'66 and barely returned to the 1960-'61 level the following year.

It was against this background that the HYV programme was launched in 1966-'67. The Intensive Agricultural Area Development Programme had already been launched in 1960-'61 in Thanjavur, and was extended as the Intensive Agricultural Development Programme to Madurai, Chingleput, Coimbatore and Tirunelveli districts in 1965. The IADP was a package deal involving the application of fertilisers, the use of improved seeds, plant protection methods, cultural practices, etc., along with the provision of timely credit, education through demonstration and the like. It was aimed at increasing the production of cereals.

Starting with an initial coverage of 2.1 lakh hectares of land, the HYV programme has since had a rapid spread with more than three quarters of the paddy area and over a quarter of the millets area now claimed to be covered by the new programme. The impact of the HYVP and the concomitant increase in fertiliser consumption on the production and productivity of paddy, and to some extent on millets is quite clear.

The impact of the HYV programme was not felt immediately on the production trend of paddy. Prior to the introduction of the programme, the trend had been a steadily increasing one until the peak output of 40.3 lakh tonnes achieved in 1964-'65. In the drought year that followed, paddy production fell sharply to 35.2 tonnes. Although the production in 1966-'67 exceeded this level, it nevertheless did not reach

the level of the peak year of 1964-'65. In fact, this output was not reached until 1970-'71, when it was also surpassed. It is reasonable to conclude that the full potential of the HYV programme was realised in the years following the drought year of 1968-'69; paddy production in 1971-'72 was 53 lakh tonnes, in 1972-'73 was 55.7 lakh tonnes, and in 1973-'74 was 55.9 lakh tonnes. 1974-'75 was once again a bad year, and output fell to 41.6 tonnes -- a level that was nevertheless above the pre-HYV peak, -- followed by a splendid recovery the subsequent year when the output reached 58.6 tonnes.

Although this achievement appears dramatic, especially the high growth performance between 1968-'69 and 1969-'70 and between 1969-'70 and 1970-'71, both of which must be seen as 'recovery growths', the fact remains that the post-HYV growth rates are much lower than what was achieved in the fifties. But for the 'recovery rates' the post HYV performance has been of the order of less than 6 per cent increase from year to year compared with the 7 to 9 per cent which were frequent in the fifties. Hence if the HYV programme was expected to make a clear break with past trends, this is yet to come about in the State, and the achievements of the 'Green Revolution' are much more modest than they are often made out to be. Furthermore, there is reason to suspect that the Green Revolution may already have been showing weariness. In 1969-'70, about 45 per cent of the total paddy area was under the HYV programme; since then the level is said to have moved up to close to 80 per cent. If this has in fact happened, then the incremental addition in output has not been at all striking.

The HYV programme appears to have had a more conspicuous success in the case of millets, where both production and productivity have gone up in recent years in spite of the fall in the area under cultivation.

Wages and consumption patterns[5]

For the present analysis, we shall take up the movements in annual averages of wage levels over time without paying any attention to the seasonal variations within any given year.

On the face of it, there appears to have been a general upward movement in wages. Between 1951-'52 and 1973-'74, the money value of daily wages of male field agricultural labourers increased from Rs.1.55 to Rs.3.48, i.e., at an average annual (simple) growth rate of 5.66 per cent. The wage rates of women field labourers more than doubled over the same period. Wages of other categories -- non-adults, herdsmen, etc. -- also rose substantially, though not by the same amount over the period.

Money wages, however, do not reflect reality. If the changes are considered after adjusting for changes in the price levels, that is to say, if we consider changes in the real wages over the twenty three year period, then the picture is different. The most striking result that emerges from such an exercise is that real wages between 1951-'52 and 1973-'74 have not only declined in the case of all categories but have come down rather substantially. In the absence of readily available price series, the exercise of adjusting the data was repeated thrice using three separate deflators: price of paddy first sort, of ragi, and of paddy second sort. Although the resulting values were not identical, they all tend to support the conclusion drawn. Using paddy first sort, for instance, the real wage of male field labourers in 1973-'74 was only around 67 per cent of what it was in 1951-'52, while that of female field labourers had come down to about 71 per cent of the earlier level. Wages of other categories of agricultural labourers also show a similar decline in real terms. On the whole, therefore, the pattern of real wage

movements has been one of decline up to the early sixties, a slow revival after that up to the end of the sixties, and a subsequent decline again in the seventies.

Absolute figures of consumption show how desparately low the consumption standards in rural Tamil Nadu are. Per capita monthly expenditure which was Rs. 18.57 in 1960-'61 slowly moved up, in current prices, to Rs. 32.85 in 1969-'70, but came down to Rs. 27.87 in 1970-'71. It is not easy to explain why the 1970-'71 figure of monthly consumption expenditure is lower than the previous two years' even in terms of current prices during a period of generally rising prices. Using the rural price index to adjust the figures only brings out the fact of declining consumption more sharply. There was some increase in consumption expenditure until about the mid-sixties, but the level fell off sharply thereafter. This is brought out in Table 2 below:

Table 2

Per capita consumption expenditure

Year	Per capita consumption at 1960-'61 prices
1959-'60	216.07
1960-'61	222.84
1961-'62	249.36
1963-'64	252.00
1964-'65	226.08
1968-'69	195.72
1969-'70	215.28
1970-'71	167.23

Source: Various NSS rounds.

The fall in per capita consumption in the early seventies is quite consistent with the finding that between 1969-'70 and 1970-'71 real wages of agricultural labourers in Tamil Nadu had come down.

Turning then to the pattern of consumption over the period, it is not surprising to find that an increasing part of the consumption of rural households was on food items: if we examine the distribution of average monthly per capita expenditure on major items of consumption in the rural areas of the State during the period 1960-'61 to 1970-'71, it is seen that in the initial years around 70 per cent of the total expenditure is on food items, and that in the latter half of the period it is higher -- over 72 per cent in 1964-'65, 78 per cent in 1968-'69, 77 per cent in 1969-'70, and 76 per cent in 1970-'71. In other words, over time there has been a reduction in the share of expenditure on non-food items. The fall is particularly pronounced in the case of clothing. It was over 8 per cent in 1960-'61 and rose slightly until 1963-'64; from then on it registered sharp falls, reaching a low figure of 3.6 per cent in 1968-'69. This was probably exceptional, but even in 1970-'71 the expenditure on clothing was only 6 per cent of the total. On the whole it appears that clothing and what are described as 'other non-food items' appear to be the ones that make the adjustments when expenditure on food items tends to move up.

Finally, it must be possible to conclude that, if the fall in the real wages of the poorer sections seen earlier in this section is taken into account along with the fact that the period was one of rising per capita income, then the disparities in consumption patterns as between the rich and the poor has most probably gone up.

State policy

Interpreting the conclusions drawn in the above sections requires identification of the main factors responsible for bringing about changes in the rural economy of Tamil Nadu. Among these, by far the most dominant has been state policy. State policy towards the rural areas appear to have had, over the period, a two fold objective: the first to stimulate the productive operations and the second to bring about some structural transformation. Both of these -- the latter explicitly and the former indirectly -- were considered to be, in the final analysis, meant to benefit the poor majority.

Production

State policy to stimulate productive operations goes back at least to 1942-'43 when the Grow More Food Campaign was launched in the wake of cessation of imports during the Second World War.[6] The Campaign had a two-fold objective of extensive cultivation by bringing new areas under food crops, increasing double crop cultivation and cultivation during the off season and intensive cultivation by the use of improved seeds and better manuring. Until 1946, most schemes for growing more food consisted of inducements and concessions designed to add to the areas under irrigated and unirrigated food crops, to increase the acre yields of crops and to encourage the use of protective food like vegetables. In subsequent years with greater emphasis on self sufficiency in food production in the country as a whole, further schemes of land reclamation, supply of fertilisers, etc., were taken up which accounted for the big increase in the net sown area and gross cropped area in the early fifties. An aspect worth noting here is that this was accompanied by a Three Year Plan of Intensive Cultivation Schemes (1949-'50 to 1951-'52) which represented a coordinated and integrated programme with a view to concentrate the Grow

More Food efforts in compact areas called 'Intensive Cultivation areas'. As we shall see later on, the 'selective and intensive' approach became the firm policy from the mid-sixties onwards.

In the general objective to stimulate production, irrigation has been one of the major measures. The state had 21.95 lakh acres under major and medium irrigation projects at the commencement of the First Plan. During the First Plan, nine schemes were taken up at a cost of Rs.28.9 crores. The Lower Bhavani Project and the Mettur Canal Schemes were the most important among these. Under the Second Five Year Plan in addition to carrying over the incomplete works of the First Plan, five more schemes were taken up and four of them were completed. The Parambikulam-Aliyar Project started during the Second Plan was completed during the Third Plan period. With that the state reached its limits in terms of major irrigation and a recent official assessment has been that further extension to irrigation on a large scale from major and medium projects would require import of water from catchments draining into other states.[7]

Hence from the Third Plan onwards there was a shift into minor irrigation projects. The shift in irrigation policy was not only from major irrigation to minor irrigation. Along with it also came a shift from public irrigation to providing subsidies for private irrigation, especially pumpsets and tubewells. The number of electrically operated pumpsets shot up from less than 1,00,000 in 1961 to over 2,00,000 in 1966 and moved upto 6,80,000 in 1974. By the beginning of the 1970s Tamil Nadu claimed over 40 per cent of the number of pumpsets connected with electricity in the whole country. This was also accompanied by subsidised supply of electricity for agricultural purpose. Liberal credit facilities were also made available for the purchase of pumpsets.

From 1946-'47 onwards there have been schemes to provide machinery like tractors and bulldozers to farmers for the reclamation of virgin lands and current fallows and for modernising agriculture in general. Initially tractors and bulldozers owned by the Agricultural Department were hired out to farmers at concessional rates. In 1951-'52 the Tractor Hire Purchase Scheme was introduced "with a view to assist ryots owning large extents of lands to reclaim virgin lands and bring more area under cultivation by mechanical means".[8] It was claimed also that while the Tractor Hiring Scheme is intended to provide facilities for mechanised cultivation to the poorer sections of the ryots who cannot afford to have tractors of their own, this scheme helps to increase the availability of private tractors in local areas.[9]

Subsidies of various kinds were made available for soil conservation, land development, the use of improved seeds and chemical fertilisers and the like. It is thus clear that the main policy instrument used by the state to achieve increase in production was subsidies. Though the schemes themselves have undergone many changes during the past quarter of a century the principle has continued to be the same.

The Intensive Agricultural Area Programme started in 1960-'61 and extended in 1965-'66 was another one of these schemes. The programme which was also known as the 'package programme' aimed at a package deal to increase production of cereals involving the application of fertilisers, the use of improved seeds, plant protection methods, cultural practices, etc., all supported through liberal credit provisions. The HYV programme started in 1966-'67 was but the culmination of a series of subsidised programmes started more than a quarter century earlier.

Land reforms

Along with these measures to increase production, state policy was also geared to bringing about a structural transformation of the rural economy in which land reforms were to play the major role.[10] In the 1950s the aim of land reforms was to give protection to the tenants. The Thanjavur Tenants and Pannaiyal Protection Act, 1952, The Madras Cultivating Tenants Protection Act, 1955, The Madras Cultivating Tenants (Payments of Fair Rent) Act, 1956 and the Madras Cultivating Tenants (Protection from Eviction) Act, 1956, were among the more important of the legislative measures of that period. These were followed by land ceiling legislations in the sixties and early seventies. The Land Ceiling Act of 1961 fixed the ceiling on Agricultural land that could be held by a family consisting of not more than five members at 30 standard acres. For families having more than five members an additional five standard acres was allowed for each additional member subject to an overall limit of 60 standard acres. The 1961 Act was amended in 1970 reducing the ceiling limit to 15 standard acres for a family of five and the overall ceiling limit to 40 standard acres for any family above this size. The norm used for arriving at 'standard acre' in both these Acts were one acre of wet land assessed at the rate of Rs.10 and above per acre with increase in acreage permitted as one moved down to dry land and land with lower assessment reaching a maximum of four acres.

There were also other pieces of legislation affecting the ownership and use of land during the sixties. The Tamil Nadu Agricultural Lands Record of Tenancy Rights Act of 1969 proposed to prepare a record of tenants in districts so that intermediaries or landholders would not take advantage of the measures brought in to protect the rights of tenants. Similarly, the Madras occupants of Kudiyiruppu (Protection from Eviction) Act 1964 aimed to protect tenants and agricultural

labourers from being evicted from their Kudiyiruppu (place of residence). The Madras Occupants of Kudiyiruppu (conferment of Ownership Rights) Act, 1971 followed it up by laying down the procedure to confer rights (pattas) to the Kudiyiruppudar concerned.

With these measures of land reform there were also efforts to protect the interests of agricultural labourers through minimum wage laws. The National Minimum Wages Act of 1948 was in vogue till a state law was passed in 1959 fixing minimum wages for seven classes of workers employed in agriculture. The minimum wages were revised upwards in 1969. A series of measures were also taken to provide special assistance to small farmers.

The survey of agricultural change in the state has shown that the policy measures to boost production have been quite successful. But the review of land ownership and operation has suggested that the measures enacted to bring about a structural change in the rural areas have not had much of an impact. The fall in the share of the top size group and the increasing share of the bottom groups may be taken as the positive results of the land reforms measures mentioned above,[11] but apparently the 'radical' land ceiling measures have left the ownership pattern substantially unaltered. It was seen that the Minimum Wages Act did not protect the real wages of the agricultural labourers from falling.

Growth without structural change

Thus the rural transformation in Tamil Nadu between 1950 and 1975 has been one of growth without major structural changes. In what follows we shall examine the impact of such a 'growth'. If the efforts to stimulate productive operations have been successful it is important to examine who among the producers have been the beneficiaries of such programmes. The discussion in the earlier

sections has indicated that the major beneficiaries of the changes, viewed from the stand point of asset accumulation, have been the richest section among farmers, particularly the top one per cent. All-India comparison shows that in terms of share of assets of the richest 1.0 per cent, Tamil Nadu topped the list both in 1961-'62 and 1971-'72.[12] At the other end in terms of the average value of assets of the lowest size groups, Tamil Nadu was next to last in 1971-72 (Orissa being the last) and in the percentage of rural households not owning any land at all and in the category of neither owning nor operating, Tamil Nadu in 1971-'72 stood first (with 17 and 14 per cent respectively of rural households coming in these categories).[13] It is therefore, not surprising that in the matter of distribution of rural assets also Tamil Nadu shows the greatest inequality.

Large and small farmers

We must examine what accounts for the differential impact of growth of output on large and small farmers. A careful examination of the farming conditions and practices of large and small farmers based on recent Farm Management Studies in Thanjavur and Coimbatore,[14] indicates that while there are differences between the large and small farmers in terms of land utilisation and cropping pattern these differences do not seem to arise from what may be described as purely technical factors. The major differences between the large and small farmers are in terms of the utilisation of basic factors, owned land and owned labour. The large farmers operate substantially on owned land with hired labour whereas the small farmers operate with own labour and a higher proportion of leased-in-land. Large and small farmers also differ in the use of implements. On the whole the large farmers rely on major implements, both traditional and improved, and the small farmers depend on traditional implements both major and minor. The scale factor is seen

also in the availability of irrigation water. On the one hand we have the evidence from the "World Agricultural Census, Tamil Nadu", that the small farms have a higher proportion of irrigated to unirrigated land. But the large farms have been the major beneficiaries of the 'pumpset revolution'.

We have noted already that the shift into subsidised private irrigation was part of the major effort from the second half of the sixties to boost agricultural production via the seed-fertiliser-water-implements revolution also referred to as the 'green revolution'. What is important here is to realise that in the new technology there is a high level of complementarity of water, other inputs and modern implements. Analysing the time profile of change in farm implements it is seen that there was a close link between increase in irrigation through electric pumps and the increase in the use of tractors since the early sixties.

These technological complementarities are also possibly scale neutral. But the possibility of taking advantage of the technical complementarities certainly is not scale neutral. To give an example, the "Techno-Economic Survey of Madras 1961" had calculated that it would cost a farmer about Rs.145 per acre for water from a tube-well if the yield of the tubewell was about 20,000 gallons per hour and the area irrigated 40 acres of paddy, pointing out that wells yielding less than 20,000 gallons per hour would be uneconomical.[15] Hence the farmer's economic standing is an important factor determining the possibility of taking advantage of the new technology. Obviously the bigger farmers would have a differential advantage in this respect. There is the possibility that through appropriate credit policy the advantage of the larger farmers could be neutralised to some extent. However, all the evidence we have is that official credit operations in effect have also been to the advantage of the bigger farmers.

The Thanjavur FMS gives some details of the sources of credit to farmers of different size classes. Dividing these sources into two, official (consisting of government, Co-operatives, Banks and Panchayat Union) and private (moneylenders, relatives and all other sources) it is seen that official sources supply 28.16 per cent in the case of the lowest, 16.78 and 15.27 per cent of the next two size groups and 71.48 and 77.34 per cent for the top two groups, the rest in all cases coming from private sources. Actual credit received from official sources was Rs.2,960 for 35 farmers of the lowest group and Rs.1,08,347 for 20 farmers of the highest group showing an average of Rs.84.6 and Rs.5,417.4 respectively.[16] Another study conducted by the Director of Agriculture, Tamil Nadu in 1970 to find out the nature of credit distribution in the agricultural sector showed that per farmer government credit was Rs.35.5 in the case of farmers with less than 2.5 acres, Rs.248.4 for farmers in the next size class between 2.5 and 7.5 acres, Rs.857.1 in the case of those owning between 7.5 and 15.0 acres and Rs.416.7 for farmers above that size. On this basis, the per acre governmental credit among the size classes in ascending order was seen to be Rs.54.5, Rs.52.9, Rs.81.2 and Rs.18.6. This appears quite 'fair' but the pattern was seen to change substantially with respect to co-operative credit. Per farmer credit from the co-operatives in ascending order of size classes was Rs.67.2, Rs.579.2, Rs.1,160.3 and Rs.5,172.2 and per acre in the same order Rs.44.7, Rs.123.4, Rs.110.0 and Rs.231.1.[17] Thus it is seen that the operation of the credit mechanism had a clear size bias enabling the larger farmers to get more credit (possibly also when credit is needed) which along with their own resources would have conferred special advantages on them to go in for new methods of cultivation and to benefit from the increase in output resulting from it.

We can examine what implication all this will have on the relative performance of farms of different sizes.

The Coimbatore Farm Management Study gives a great deal of material to probe into this area.[18] It can be seen that per unit of land and per unit of capital the performance of the small farms is much better than that of the big farms. This is specially true in the case of capital. If one is only concerned with static efficiency in performance one has, therefore, to conclude that the small farms are more efficient than the larger ones, thus confirming the findings of the Farm Management Studies of the mid-fifties. On the other hand, if the main concern is with the implication of the relative performance of the farms on their accumulation and long-term prospects one must take into account the return per family member. It is seen that the return per family member in the small farms will put them just above the official 'poverty line' and in the top groups, it is three to four times as high. Even granting that members of larger farms have a higher consumption level, it is clear that their earnings can leave a surplus. Thus the annual returns from farm operations enable the members of the small farms at best to survive whereas they help the large farms to continue their process of accumulation so that in subsequent periods the gap between the small and the large in terms of assets will increase. This is exactly what we have noticed in rural Tamil Nadu and is the key to the understanding of rural transformation. If we relate this process to operational efficiency also what happens is that the more efficient will just survive or even disappear over time, while the less efficient ones will continue to grow and prosper.

Non-farmers

We may now turn to the impact of the rural transformation on the non-farmers. It has already been indicated that the real wages of non-farmers engaged in farming operations have come down between 1951-'52 and 1973-'74.

From this we cannot arrive at any definite statement regarding the total earnings of non-farmers, for that will depend also on the availability of employment in farm operations as well as earnings from non-agricultural occupations. On all of these the information we have is very sketchy indeed. However, it is possible to piece together material from different sources and arrive at some conclusions, however tentative they may have to be.

The main sources of information on earnings of non-farmers, particularly agricultural labour households, are the reports of the Agricultural Labour Enquiries, the All India Rural Labour Enquiry and the more recent rounds of the National Sample Survey. Bringing together information on man-days worked and wage rate per day for selected years between 1950-'51 and 1970-'71 it is seen that generally there was an increase in the average man-days worked of agricultural workers, particularly male. For males the average annual full days of wage paid employment in agriculture was 168 days in 1950-'51, 193 days in 1956-'57 and 194 days in 1964-'65. For females there was an initial fall from 148 days in 1950-'51 to 135 days in 1956-'57; but it moved upto 146 in 1964-65. In the case of children the corresponding figures were 199 in 1956-'57 and 209 in 1964-'65. Non-agricultural employment, however, has not been steady.

For 1970-'71 the annual average full days of wage paid employment has been estimated from the NSS twentyfifth round. It has been calculated from the Table of percentage distribution of estimated number of man-days spent in a week under different types of economic and other activities by persons belonging to various age-sex groups. The percentage man-days per week has been converted into average annual full days for different groups. Persons below 15 have been treated as children.

It is difficult to say whether the 1970-71 figures on employment are strictly comparable with the earlier figures. The figures for employment in agriculture are lower in the case of all three groups, strikingly so in the case of females and children. Taking agricultural and non-agricultural employments the figure for males in 1970-71 does not appear to be much lower than in 1964-65. But there is no adequate explanation for the big fall in the case of females. The reduction in employment for children may be partly a reflection of increased number of days spent in school calculated as 94 days in a year.

Using the employment and wage rate figures, estimates are made of annual earnings of agricultural labourers. For male labourers' annual earnings from both agriculture and non-agriculture show a striking increase going up from Rs.180.47 in 1950-51 to Rs.520.52 in 1970-71. The figures, of course, are in current prices. For females also there is a substantial increase in total earnings although earnings from agriculture are seen to be somewhat erratic. In the case of children total income increased up to 1964-65. The figure for 1970-71 shows a big fall.

The Agricultural Labour Enquiry and the Rural Labour Enquiry have also gone into the question of the earnings of agricultural labour households from various sources. The estimates of average annual earnings of agricultural labour households for 1950-51, 1956-57 and 1964-65 are given in Table 3. From these sources we also have information on the average size of the agricultural labour households for 1956-57 and 1964-65, 4.1 for the former year and 4.0 for the latter. On this basis per capita annual income for agricultural labour in Tamil Nadu was Rs.88.30 in 1950-51, Rs.91.92 in 1956-57 and Rs.165.00 in 1964-65.

No figures are available for subsequent periods on earnings of agricultural labour households. But an estimate can be made for 1970-71 based on employment and wage rate figures given in the NSS twenty-fifth round, supplemented by information on number of earners per family. The Labour

Enquiries have shown that male earners per family were slightly more than one (1.0, 1.4 and 1.05 for 1950-'51, 1956-'57 and 1964-'65 respectively) and female earners per family were slightly less than one (0.9, 0.85 and 0.94 for the above respective years). It seems reasonable therefore to work with one male earner and one female earner per household for calculating household earnings for 1970-'71. On this basis, and relying on the NSS information, the annual wage earnings from agriculture and non-agriculture of an agricultural labour household would work out to Rs.670. An upward revision of this figure would be required to arrive at the total earnings of the agricultural labour households because as seen in Table 3 these households also have some income from 'other sources'. For the three years shown in Table 3 income from 'other sources' can be seen to be going up from 8 per cent in 1950-'51 to close to over 15 per cent in 1964-'65. Based on this trend we can make a liberal assumption that from 'other sources' agricultural labour households earned 25 per cent of their total income in 1970-'71. Total earning of a household in 1970-'71 would thus become Rs.893 (Rs.670 from agricultural and non-agricultural employment, Rs.223 from other sources). The NSS twentyfifth round showed the size of the family to be 4.5. Hence per capita earnings in 1970-'71 would turn out to be Rs.198.00.

Table 3

Average annual income of agricultural labour from different sources

Average income of the household from	1950-'51 (1)	1956-'57 (2)	1964-'65 (3)
Cultivation of land	83.85 (22.6)	10.69 (2.85)	19.45 (3.42)
Agricultural labour	230.02 (62.2)	312.64 (83.31)	424.44 (76.90)

...contd

	(1)	(2)	(3)
Non-agricultural labour	27.08 (7.3)	18.92 (5.04)	28.81 (5.22)
Occupations other than farming	--	--	17.82 (3.23)
Non-manual labour (wages and perquisites)	--	--	5.78 (1.05)
Other sources	30.05 (8.1)	33.01 (8.80)	56.63 (10.08)
Total	371.00 (100.0)	375.26 (100.0)	551.93 (100.0)

Notes: Figures in brackets are percentage to total.
Sources: Second Agricultural Labour Enquiry. All-India Rural Enquiry 1964-'65.

Poverty line

With the help of the figures we have arrived at as the earnings of the poorer sections in the rural parts of Tamil Nadu (of small farmers at the end of the previous section and of agricultural labour households above) it is possible to examine where they stand in relation to the 'poverty line'. We shall use the two standard indicators for arriving at the poverty line, viz., nutritionally adequate diet (a per diem intake of 2,400 calories which cost around Rs.15.00 per month in 1960-'61 prices taking into account the consumption habits in the state) and a minimum level of living i.e., nutritionally adequate diet plus some non-food items, costing in all Rs.21.00 per month in 1960-'61 prices.[19]

Using these two norms and making use of the NSS data on consumption patterns we have estimated the percentage of rural population coming below the poverty line. The findings are reported in Table 4. It is seen that at the beginning of the period, slightly over 50 per cent of the

rural population and at the end of the period slightly below 50 per cent of the rural population come below the poverty line. What is perhaps more interesting is that there was a tendency for the incidence of poverty to decline from the mid-fifties to the early years of the sixties with 1961-'62 showing the lowest figure of 36.04 per cent. Since then, however, the percentage of population below the poverty line has been steadily increasing reaching 48.63 per cent in 1969-'70. The percentage of population below the poverty line in terms of the minimum levels of living norm was over 74 per cent in 1957-'58, went up to nearly 80 per cent towards the end of the decade and then steadily declined to 64 per cent in the mid sixties. But as in the case of the nutritionally adequate diet the percentage of population below the poverty line in terms of the minimum level of living norm also went up in the late sixties, reaching in 1969-'70 almost the same figure as in 1957-'58. The picture that emerges, then, is one of a fall and then a rise in the proportion of population below the poverty line. The maximum reduction in the proportion of the poor was reached in the early 1960s; thereafter poverty increased steadily, even dramatically. Between 1961-'62 and 1969-'70 the proportion of people with nutritionally inadequate diet increased from 36.0 per cent to nearly 49.0 per cent of the rural population. Admittedly this proportion still was lower than in the later 1950s, but there was alarming retrogression throughout the 1960s. Using the more generous norm of Rs.21 per month (in 1960-'61 prices) the same general pattern is seen. Indeed the proportion of rural population living below this poverty line was virtually the same in 1969-'70 as it had been in 1957-'58. Given the increase in the size of the rural population that had occurred in the intervening years, the number of poor people had of course increased substantially.

Table 4

Estimates of rural population below the 'poverty line'

Year	Nutritionally adequate diet (Norm: 2,400 calories per day)		Minimum levels of living (Norm: Rs.21 per month in 1960-'61 prices)	
	Cost per month in current prices	Percentage of population below the poverty line	Cost per month in current prices	Percentage of population below the poverty line
1957-1958	13.37	53.10	18.48	74.10
1959-1960	14.92	53.79	20.62	79.21
1960-1961	15.30	47.89	21.11	69.82
1961-1962	15.90	36.04	22.00	66.49
1963-1964	16.99	38.98	23.47	64.36
1964-1965	19.88	45.81	27.46	72.45
1969-1970	27.93	48.63	38.58	73.98

Source: Calculated from various NSS rounds.

It should not be difficult to identify who the poor are in the rural areas. The calculations above have shown that the per capita annual income of agricultural labourers in rural Tamil Nadu was Rs.88.30 in 1950-'51, Rs.91.52 in 1956-'57, Rs.165.00 in 1964-'65 and Rs.198.00 in 1970-'71. Table 3 indicates that those with a per capita expenditure of Rs.160.44 in 1959-'60, Rs.238.56 in 1964-'65 and Rs.335.16 in 1969-'70 would have been below the poverty line in terms of even the nutritionally adequate diet norm. It is thus evident that the earnings of the agricultural labourers in all these years were way below what was necessary to be above the poverty line.

It is more difficult to say what proportion of small cultivators, whose annual earnings have also been calculated above, come below the poverty line. The Coimbatore FMS indicated that the farm business income per member of the family in the case of the smallest group of farmers was about Rs. 365 per annum. This is only slightly above Rs. 335 that was required to be above the poverty line in 1969-'70 in terms of nutritionally adequate diet, and considerably less than Rs. 463 per annum if the poverty line is drawn in terms of minimum levels of living. So the members of this group could not be claimed to be above the poverty line. Similarly it has been calculated that net earnings from one hectare of dry land was about Rs. 540 in the early 1970s. If this is taken to be the earning of a family of four to five members the per capita earning would be between Rs. 135 and Rs. 110 per annum. At this rate even farm families with three hectares of dry land or one hectare of wet land would have to be considered to be living below the poverty line. According to Table 3 therefore, close to 50 per cent of farm families in rural Tamil Nadu must be taken as being below the poverty line.

These figures highlight one of the implications of the kind of transformation that Rural Tamil Nadu experienced in the post-Independence period. A phenomenal increase in output of practically all produce in the rural areas, in particular foodgrains, has left a vast proportion of the population even without a nutritionally adequate diet, not to speak of any tolerable level of living.

The hidden transformation

We have characterised the rural transformation in Tamil Nadu as growth without major structural changes. But in another sense a quiet structural transformation has been going on in rural Tamil Nadu. The main feature

of this transformation is the tendency of small farmers to leave land and farming to join the ranks of the rural proletariat. In fact, the evidence we have shows that there is not much of a difference between the very small farmers and the agricultural labourers both in terms of occupational characteristics and earning capacity.

The twenty-fifth round of the NSS concentrated on the problems of the 'weaker sections' in the rural areas. The weaker sections identified for this purpose comprised two strata of the population - the 'small cultivator households' and the 'rural non-cultivating wage-earner households'. Small cultivator households were defined as the lowest 10 per cent of the households having some cultivated land during the reference period, July 1969 - June 1970, and non-cultivating wage-earner households were defined as households having no cultivated land whatsoever during the same reference period. The time disposition of the small cultivators in rural Tamil Nadu shows some interesting features. It was seen that the small cultivators work in their farm only 6 to 8 per cent of the total man-days (compared with the all-India figures of 10 to 12 per cent and 22 to 30 per cent in a state like Punjab). They were seen to spend 17 to 28 per cent of the man-days as paid workers in other farms, which was only a little lower than what the non-cultivating wage-earner households were doing. It was seen also that the non-cultivating wage earners generally had lower unemployment than small cultivators. In terms of earnings, the small cultivators were seen to have larger earnings than wage earners only during the slack seasons (April to September) whereas during the busy agricultural seasons (October to March), the non-cultivators, both male and female had a higher earning than the small farmers.

These findings lend further support to the argument put forward earlier; and apart from the Census definitional

changes, there must have been a decline in the number of cultivators in Tamil Nadu and an increase in agricultural labourers. Such a change of course does not take place all of a sudden and can only be fully documented with much larger information about the ownership and utilisation of land.

The quiet transformation that is going on in the rural areas is not confined to the occupational changes referred to above. The twentyfifth round of the NSS also probed into the willingness of the weaker sections to give up not only traditional occupations, but also places of work. Some 24 per cent of the small cultivator households expressed willingness to take up other work within the village (almost 50 per cent of them for less than Rs.1,000 per annum), 26 per cent to take up work outside the village if there was guaranteed regular employment (almost 40 per cent of these expecting only less than Rs.1,000 per annum and 80 per cent only less than Rs.2,000 per annum), and another 4 per cent was willing to accept employment outside the village even without guaranteed employment. In the case of wage earners also, 51 per cent of the households reported willingness to take up non-agricultural work, 20 per cent within the village, 21 per cent outside the village, if regular employment was guaranteed and 10 per cent outside the village even without guarantee of regular employment.

Conclusion

A few concluding observations about the rural scene in Tamil Nadu are in order. The first thing that strikes us is the fact that the rural scene is far from static. Over the past quarter of a century the rural areas have experienced a new dynamism unknown in the days of the past-substantial increase in output, major changes in production techniques and in organisational patterns. We have no evidence to support the frequently repeated

allegation that rural areas resist change for whatever reasons it may be. Secondly the changes in the rural areas have been induced changes. Frequently the changes came as a result of decisions taken outside the rural areas. Thirdly, some of these changes have moved in desired directions. Extensive cultivation through the use of major irrigation schemes, intensive cultivation through the use of modern implements, increase in output and systematic production patterns and more organised efforts through cooperatives and the like were all as they were intended to be.

But these processes have also created some changes that were not desired. The pressure on small farmers to leave their land and to become agricultural labourers is one of them. The decline in the real wages of the agricultural labourers is another. And the tendency of mass poverty to continue and increase is yet another.

Thus the development process of the past have generated growth and affluence for the few and poverty and insecurity for the many. These must then be taken as two sides of the same coin.

We have documented these processes without fully analysing them. One thing, however, is worth noting. The totality of changes that we have observed have been brought about essentially through a transformation into modernity of traditional agriculture via technological innovation. But technology has had differential impact on different sections in rural society. The problem, however, has not been of technology itself. Making water available, increasing the productivity of land through better farming practices etc., are in themselves beneficial. We have seen also that the technology adopted in Tamil Nadu was essentially scale neutral. The problem really is that technology is seldom socially neutral. Bertrand Russel

said that technology brings benefits to Man, but which particular men it benefits depends on the social system. In this sense technology has what may be called a 'refraction effect' which is determined by the productive system into which it comes. In the Tamil Nadu case what we have observed is that scale neutral technology conferred differential advantage on the richer sections because of their ability to benefit from the complementarities of modern inputs and farm processes which the smaller farmers could not take advantage of. Apparently, not only physical technology, but even social technology -- the market forces, for instance -- was in favour of the rich and against the poor. An era of rising prices led to the growing accumulation of assets by a few and the deterioration of the real wages of the many.

What are the social and economic forces that enable the few who are rich to benefit from all the measures undertaken for the improvement of 'society as a whole' and what are the socio-economic forces that prevent the many who are the poor from taking advantage of even measures specially designed for them? This is the clue to the understanding of rural transformation.

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(For detailed documentation and sources of data refer <u>Dynamics of Rural Transformation - A Study of Tamil Nadu : 1950 - 1975</u>).

Acknowledgement: K. Bharathan helped in preparing this version from the original work and I wish to record my thanks to him.

Notes

1. The analysis of growth rates of NSDP is taken from Celine D'Souza's unpublished work "Economic Trends in the Planning Era".

2. The analysis of changes in the land owning and operating patterns is based on data from the National Sample Survey, particularly the 16th round (1959-'60), 17th round (1961-'62) and the 26th round (1971-'72).

3. The main sources of information, for the examination of changes in the pattern of asset distribution, are the two surveys of the Reserve Bank of India: All India Debt and Investment Survey 1961-'62, and All India Debt and Investment Survey, 1971-'72.

4. Basic data pertaining to the past performance of the State are available from the two official periodical publications, Season and Crop Reports and Tamil Nadu: an Economic Appraisal.

5. Data on wages and consumption patterns are taken from the annual wage rate series constructed by the Agro-Economics Research Centre of the Madras University.

6. Government of Madras, Committee on Agricultural Production, 1966, p.7.

7. Government of Tamil Nadu, State Planning Commission, "Report of the Task Force on Agriculture" Vol.2, p.65.

8. Committee on Agricultural Production op. cit, p.89.

9. Ibid, p.89.

10. For details of Land Reforms in Tamil Nadu see K.S. Sonachalam, "Land Reforms in Tamil Nadu", Oxford and IBM, New Delhi, 1970, and G. Venkataramani "Land Reform in Tamil Nadu", Sangam Publishers, Madras, 1973.

11. Pranab Bardhan in "Trends in Land Relations" (Economic and Political Weekly, Annual No., 1970) points out that the subdivision of land through inheritance by itself will lead to an increase in the share of land in the lowest classes over time.

12. The figures are from NSS 17th and 25th rounds.

13. NSS 25th round.

14. Farm Management Studies conducted on sample survey basis in Thanjavur in 1967-'68 and in 1969-'70 and in Coimbatore from 1970-'71 to 1972-'73.

15. "Techno-Economic Survey of Madras" p.85.

16. Studies in the Economics of Farm Management in Thanjavur (Tamil Nadu) 1969-'70", Table 3.37 page 58.

17. Reported in R.K. Sampath and Jayalakshmi Ganesan, "Economics of Dry Farming in Tamil Nadu", Sangam Publishers, Madras, 1972 ch. 4.

18. "Studies in the Economics of Farm Management in Coimbatore (Tamil Nadu) 1970-71 to 1972-73", p.20 and 83.

19. For details see C.T. Kurien "Rural Poverty in Tamil Nadu", Working Paper, World Employment Programme Research, International Labour Office, Geneva, Sep. 1976.

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